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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/589,881	06/09/2000	Jeongmin Moon	3430-0105P	1734
7590 02/29/2012 Birch Stewart Kolasch & Birch LLP P O Box 747 Falls Church, VA 22040-0747			EXAMINER NGUYEN, HOAN C	
			ART UNIT 2871	PAPER NUMBER
			MAIL DATE 02/29/2012	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

09/589,881

Applicant(s)

MOON, JEONGMIN

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2012.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1,2,6-11,14-18,21 and 24-27 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1,2,6-11,14-18,21 and 24-27 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

Paper No(s)/Mail Date ____.

DETAILED ACTION

In view of the Appeal Brief filed on January 27, 2012, PROSECUTION IS HEREBY REOPENED. New grounds of rejections are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Edward J Glick/
Supervisory Patent Examiner, Art Unit 2882.

Claims 1-2, 6-11, 14-18, 21 and 24-27 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

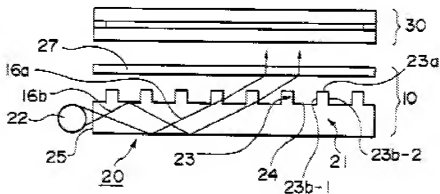
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-2, 7-9, 11, 14, 16-18, 21, 24-25, 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Miyashita et al. (US 6011602).

One of ordinary skill in the art would know that the upside down of the light guide will give the same physical properties such as uniform light distribution and view angle.

FIG. 1

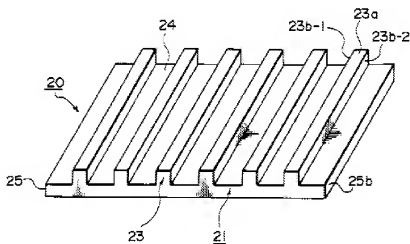


In regard to claims 1 and 2, Miyashita et al. disclose an auxiliary light source device for a reflective liquid crystal display device having a reflector, the auxiliary light source device comprising:

- a light source 22; and

- a light directing member (light guide 20), the upside-down light guide inherently gives the same property) for directing incident light from the light source toward the reflector outwardly along an orthogonal direction,
- the light directing member including:
 - an upper surface (e.g. 132c in Fig. 12) and a lower surface (the light-output-side surface 24) parallel to each other,
 - the lower surface having a plurality of convex portions 53 extending from the lower surface,

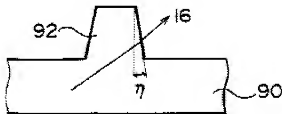
FIG. 2



- each of the convex portions having a substantially planar surface which is substantially parallel to the lower surface and a side surface (side surfaces 23b-1 and 23b-2) connecting the planar surface (a top surface 23a) and the lower surface (the light-output-side surface 24), and a side surface angle η (Fig. 10A) between the lower surface and the side surface of the

convex portion and a line perpendicular to the substantially planar surface is about 90° less than 10 degrees that is less than 5° (col. 15 lines 58-60)

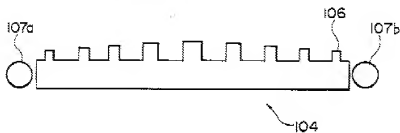
FIG. 10A



wherein

- the plurality of convex portions have the same side surface angle with each other, wherein light reflected along an orthogonal direction to the liquid crystal display device 30 is uniform, and
- a size of the plurality of convex portions increases with increasing distance from the light source as shown in Fig. 11B.

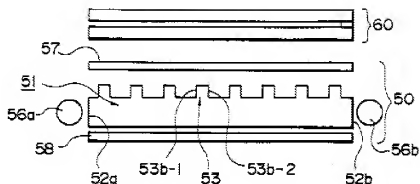
FIG. 11B



Claim 2:

- a light reflecting member 58 to guide light from the light source 56/a/b into the light directing member 51 as shown in Fig. 5.

FIG. 5



In regard to claims 11 and 14, Miyashita et al. disclose an auxiliary light source device for a reflective liquid crystal display device having a reflector, the auxiliary light source device comprising:

- an upper reflective surface to reflect impinging light above a certain incidence angle;
- a lower reflective surface (the light-output-side surface 24) parallel to the upper reflective surface, the lower reflective surface having a plurality of convex portions extending toward the reflector to direct light from the auxiliary light source device to the reflector outwardly along an orthogonal direction; and
- an entry surface (the light input surface 25) connecting the upper and lower reflective surfaces through which light from a light source enters,

wherein

- each convex portion includes a planar portion which is substantially parallel to the lower reflective surface and side surfaces connecting the planar portion with

the lower reflective surface, and a side surface angle between the lower surface and the side surfaces and a line perpendicular to the planar surface is less than 5°s about 90° (col. 15 lines 58-60),

- the plurality of convex portions have the same side surface angle with each other,
- light reflected along an orthogonal direction to the liquid crystal display device is uniform, and
- a size of the plurality of convex portions increases with increasing distance from the light source as shown in Fig. 11B.

Claim 14:

- the planar portion is substantially parallel to the lower reflective surface.

wherein

Claims 7 and 16:

- the planar surface of each convex portion has a rectangular shape.

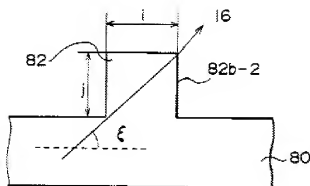
Claims 8 and 17:

- the plane surface of the plurality of convex portions has a bar shape extending perpendicular to a direction of light propagation in the light directing member.

Claim 9:

- a distance (height J) between the lower surface and the planar surface of the each convex portion is less than 50μm (Fig. 8, col. 15 lines 25-28).

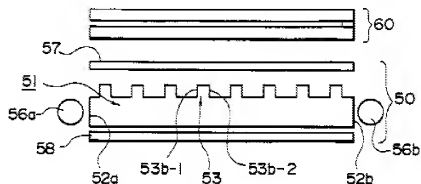
FIG. 8



Claim 18:

- the plurality of convex portions are spaced along the lower surface to ensure a uniform distribution of light along a length of the device.

FIG. 5



in regard to claims 21 and 24, Miyashita et al. disclose (Fig. 5) auxiliary light source device for a reflective liquid crystal display device having a reflector, the auxiliary light source device comprising:

- a light source 56a/b extending along a width of the reflector, to emit light along a length of the reflector (mirror sheet 58); and
- a light directing device 51 located above the reflector and adjacent to the light source to direct light from the light source to the reflector outwardly along an orthogonal direction such that a light distribution of light directed by the light directing device is substantially uniform along the length of the reflector, and such that the directed light is substantially perpendicular to the reflector, and
- the light directing device includes an upper surface, a lower surface parallel to the upper surface and a plurality of portions each extending from the lower surface toward the reflector at a 90° angle with respect to the lower or upper surface such that the light reflected outwardly along an orthogonal direction to the liquid crystal display device is uniform,

wherein

- each portion includes a planar surface which is substantially parallel to the lower surface, and
- a size of the plurality of portions increases with increasing distance from the light source.

Claim 24:

- each of the plurality of portions includes a planar surface parallel to a lower surface of the light directing device and connected to the lower surface by at least one side oriented substantially perpendicular to the lower surface.

Claims 25-27:

- the angle between the side surface and a line perpendicular to the planar surface is about between 0° and 10° (Fig. 10A, col. 15 lines 58-60).

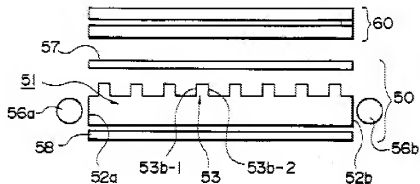
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al. (US 6011602) in view Funamoto et al. (EP 08878720A).

FIG. 5



Miyashita et al. disclose a reflective liquid crystal display device comprising:

- a display panel 60 including two substrates spaced apart, liquid crystal sandwiched between the two substrates, and
- a reflector 58 to reflect light through the liquid crystal;

- an auxiliary light source device for supplying light to the display panel, including,
 - a light source 56a/b,
 - a light directing member 51 for directing incident light from the light source toward the display panel, the light directing member having
 - an upper surface and a lower surface parallel to each other,
 - the lower surface having a plurality of convex portions, each having a substantially planar surface which is substantially parallel to the lower surface and a side surface connecting the planar surface and the lower surface, a side surface angle between the side surface of the convex portion and a line perpendicular to the substantially planar surface being less than 5°, (Fig. 10A, col. 15 lines 58-60).

wherein

- the plurality of convex portions have the same side surface angle with each other,
- light reflected along an orthogonal direction to the display panel is uniform, and wherein a size of the plurality of convex portions increases with increasing distance from the light source; and
- a light reflecting member which guides light from the light source into the light directing member,

However, Miyashita et al. fail to disclose said display panel being between said auxiliary light source and said light reflecting member.

Funamoto et al. teach said display panel being between said auxiliary light source and said light reflecting member for

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as Miyashita et al. disclosed with said display panel being between said auxiliary light source and said light reflecting member for high visibility both while illuminating and while not illuminating and reducing power consumption (abstract) as Funamoto et al. taught.

2. Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al. (US 6011602) in view Funamoto et al. (EP 08878720A).

Miyashita et al. fail to disclose the planar surface of each convex portion having a substantially circular shape.

Funamoto et al. teach (Figs. 6-7) the planar surface of each convex portion having a substantially circular shape for achieving more uniform illumination (page 8 line 19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as Miyashita et al. disclosed with the planar surface of each convex portion having a

substantially circular shape for achieving more uniform illumination (page 8 line 19) as Funamoto et al. taught.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571)272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner
Art Unit 2871

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